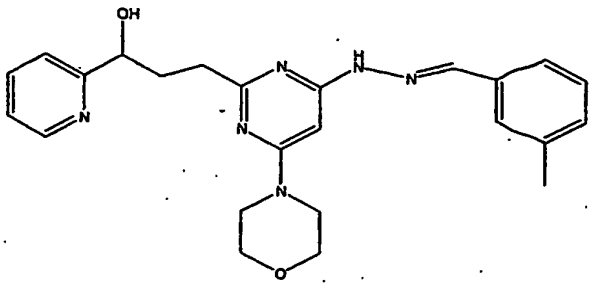
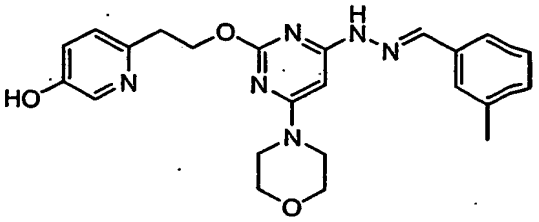
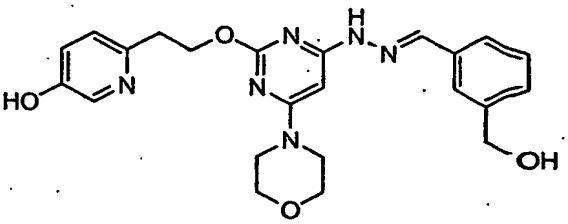
WE CLAIM:

1. A compound selected from the group consisting of:



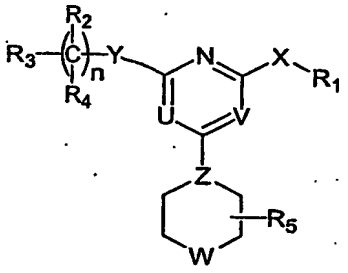


and



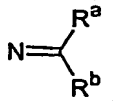
or a pharmaceutically acceptable salt, solvate, clathrate, or prodrug thereof.

2. A composition comprising an effective amount of a compound of formula (I):



(I)

wherein

R_1 is  , aryl, or heteroaryl;

each of R_2 and R_4, independently, is R^c, halogen, nitro, cyano, isothionitro, SR^c, or OR^c; or R_2 and R_4, taken together, is carbonyl.

R_3 is R^c, alkenyl, alkynyl, OR^c, $OC(O)R^c$, SO_2R^c, $S(O)R^c$, $S(O_2)NR^cR^d$, SR^c, NR^cR^d, NR^cCOR^d, $NR^cC(O)OR^d$, $NR^cC(O)NR^cR^d$, $NR^cSO_2R^d$, COR^c, $C(O)OR^c$, or $C(O)NR^cR^d$;

R_5 is H or alkyl;

n is 0, 1, 2, 3, 4, 5, or 6;

X is O, S, S(O), $S(O_2)$, or NR^c;

Y is a covalent bond, CH_2, C(O), C=N-R^c, C=N-OR^c, C=N-SR^c, O, S, S(O), $S(O_2)$, or NR^c;

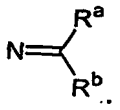
Z is N or CH;

one of U and V is N, and the other is CR^c; and

W is O, S, S(O), $S(O_2)$, NR^c, or $NC(O)R^c$;

in which each of R^a and R^b, independently, is H, alkyl, aryl, heteroaryl; and each of R^c and R^d, independently, is H, alkyl, aryl, heteroaryl, cyclyl, heterocyclyl, or alkylcarbonyl

or a pharmaceutically acceptable salt, solvate, clathrate, or prodrug thereof.

3. The composition of claim 2, wherein R_1 is 

4. The composition of claim 3, wherein U is N and V is CH.

5. The composition of claim 3, wherein Z is N and W is O.

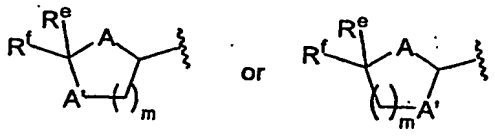
6. The composition of claim 3, wherein X is NR^c.

7. The composition of claim 3, wherein Y is O, S, or CH_2, and n is 0, 1, 2, 3, or 4.

8. The composition of claim 7, wherein R_3 is aryl or heteroaryl.

9. The composition of claim 7, wherein R_3 is OR^c, SR^c, $C(O)OR^c$, or $C(O)NR^cR^d$.

10. The composition of claim 7, wherein R_3 is



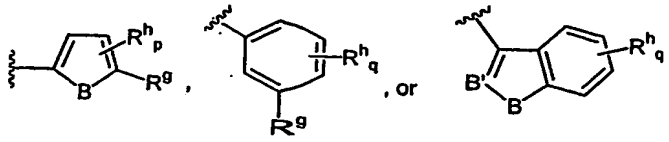
wherein

each of A and A', independently, is O, S, or NH;

each of R^e and R^f, independently is H, alkyl, aryl, or heteroaryl; and

m is 1 or 2.

11. The composition of claim 3, wherein one of R^a and R^b is



in which

B is NR^i, O, or S;

B' is N or CR^i;

R^g is H, halogen, CN, alkyl, cyclyl, alkyloxy, alkylcarbonyl, alkyloxycarbonyl, aryloxycarbonyl, heteroaryloxycarbonyl, hydroxyalkyl, alkylamino, or alkylaminocarbonyl;

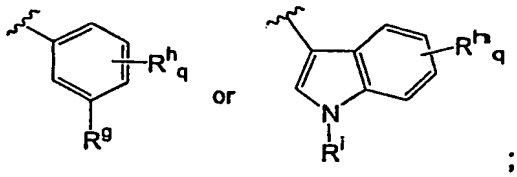
R^h is H, halogen, NO_2, CN, alkyl, aryl, heteroaryl, OR^c, $OC(O)R^c$, SO_2R^c, $S(O)R^c$, $S(O_2)NR^cR^d$, SR^c, NR^cR^d, NR^cCOR^d, $NR^cC(O)OR^d$, $NR^cC(O)NR^cR^d$, $NR^cSO_2R^d$, COR^c, $C(O)OR^c$, or $C(O)NR^cR^d$;

R^i is H, alkyl, or alkylcarbonyl;

p is 0, 1, or 2; and

q is 0, 1, 2, 3, or 4.

12. The composition of claim 11, wherein one of R^a and R^b is



;

in which R^g, R^h, R^i, and q are as defined in claim 11; and

the other of R^a and R^b is H or alkyl.

13. The composition of claim 12, wherein

R^g is H, methyl, ethyl, propyl, cyclopropyl, methoxy, ethoxy, methoxycarbonyl, methylaminocarbonyl or halogen;

R^h is F, Cl, CN, methyl, methoxy, ethoxy, $OC(O)CH_3$, $OC(O)C_2H_5$, $C(O)OH$, $C(O)OC_2H_5$, $C(O)NH_2$, $NHC(O)CH_3$, or $S(O_2)NH_2$;

R^i is H, methyl, ethyl, or acetyl, and

q is 0, 1, or 2.

14. The composition of claim 13, wherein U is N, V is CH, Z is N, and W is O.

15. The composition of claim 14, wherein X is NR^c; and R^c is H, methyl, ethyl, or acetyl.

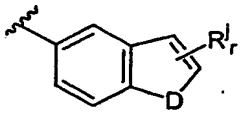
16. The composition of claim 15, wherein Y is O, S, or CH_2; and n is 0, 1, 2, 3, or 4.

17. The composition of claim 16, wherein R_3 is R^c, OR^c, SR^c, $C(O)OR^c$, or $C(O)NR^cR^d$.

18. The composition of claim 17, wherein R_3 aryl, heteroaryl, hydroxyl, alkyloxy, or heteroaryloxy.

19. The composition of claim 2, wherein R_1 is aryl or heteroaryl.

20. The composition of claim 19, wherein R_1 is



wherein

D is O, S, or NR^m;

R^j is benzo, halogen, CN, hydroxyl, alkyl, aryl, heteroaryl, alkoxyl, aryloxyl, or heteroaryloxyl;

R^m is H, alkyl, or alkylcarbonyl; and

r is 0, 1, or 2.

21. The composition of claim 20, wherein X is NR^c; and R^c is H, methyl, ethyl, or acetyl.

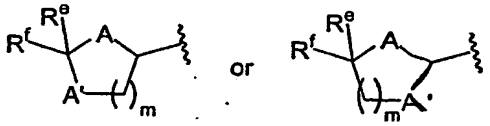
22. The composition of claim 21, wherein U is N, V is CH, Z is N, and W is O.

23. The composition of claim 22, wherein Y is O, S, or CH_2; and n is 0, 1, 2, 3, or 4.

24. The composition of claim 23, wherein R_3 is aryl or heteroaryl.

25. The composition of claim 23, wherein R_3 is OR^c, SR^c, $C(O)OR^c$, or $C(O)NR^cR^d$.

26. The composition of claim 23, wherein R_3 is



;

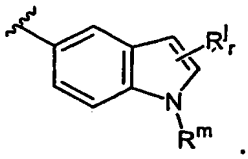
wherein

each of A and A', independently, is O, S, or NH;

each of R^e and R^f, independently is H, alkyl, aryl, or heteroaryl; and

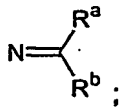
m is 1 or 2.

27. The compound of claim 23, wherein R_1 is



wherein R^m is H, alkyl, or alkylcarbonyl;
R^j is methyl, ethyl, propyl, or benzo; and
r is 1 or 2.

28. The composition of claim 2, wherein



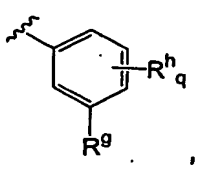
R_1 is ;

each of R_2 and R_4 is H;
R_3 is H, alkyl, aryl, heteroaryl, cyclyl, heterocyclyl, alkyloxycarbonyl, alkylaminocarbonyl, or alkylcarbonyl; and
X is NR^c.

29. The composition of claim 28, wherein X is NH.

30. The composition of claim 28, wherein one of R^a and R^b is H or alkyl; and the other is aryl or heteroaryl optionally substituted with R^g and R^h_q; R^g being halogen, CN, alkyl, alkyloxy, alkylcarbonyl, alkyloxycarbonyl, aryloxycarbonyl, heteroaryloxycarbonyl, hydroxyalkyl, alkylamino, or alkylaminocarbonyl; R^h being halogen, CN, hydroxyl, alkyl, aryl, heteroaryl, alkoxyl, aryloxyl, or heteroaryloxyl; and q being 0, 1, 2, 3, or 4.

31. The composition of claim 29, wherein one of R^a and R^b is H or alkyl; and the other is



wherein

R^g is H, alkyl, alkoxyl, methoxycarbonyl, methylaminocarbonyl , or halogen;

R^h is halogen, CN, hydroxyl, alkyl, aryl, heteroaryl, alkoxyl, aryloxyl, or heteroaryloxyl; and

q is 0, 1, 2, 3, or 4.

32. The composition of claim 28, wherein U is N, V is CH, Z is N, and W is O.

33. The composition of claim 32, wherein R_3 is heteroaryl or heterocyclyl.

34. The composition of claim 33, wherein R_3 is pyridinyl.

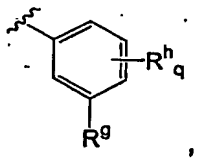
35. The composition of claim 33, wherein R_3 is 1-oxy-pyridinyl.

36. The composition of claim 33, wherein R_3 is 1*H*-pyridin-2-one.

37. The composition of claim 33, wherein n is 2, and Y is O.

38. The composition of claim 37, wherein X is NH.

39. The composition of claim 38, wherein one of R^a and R^b is H or alkyl; and the other is



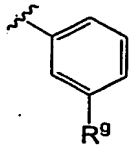
wherein

R^g is H, alkyl, alkoxyl, methoxycarbonyl, methylaminocarbonyl , or halogen;

R^h is halogen, CN, hydroxyl, alkyl, aryl, heteroaryl, alkoxyl, aryloxyl, or heteroaryloxyl; and

q is 0, 1, 2, 3, or 4.

40. The composition of claim 38, wherein one of R^a and R^b is H; and the other is



in which R^9 is as defined in claim 39.

41. The composition of claim 2, wherein the compound is:

N-{2-[3-(3,4-dimethoxy-phenyl)-propyl]-6-morpholin-4-yl-pyrimidin-4-yl}-N'-(1H-indol-3-ylmethylene)-hydrazine,

N-(2-n-butoxy-6-morpholin-4-yl-pyrimidin-4-yl)-N'-(1H-indol-3-ylmethylene)-hydrazine,

N-(2-(4-hydroxybutyl)-6-morpholin-4-yl-pyrimidin-4-yl)-N'-(1H-indol-3-ylmethylene)-hydrazine,

N-[2-(2-[1,3]dioxan-2-yl-ethyl)-6-morpholin-4-yl-pyrimidin-4-yl]-N'-(1H-indol-3-yl methylene)-hydrazine

N-(1H-indol-3-ylmethylene)-N'-[2-(3-methoxy-propyl)-6-morpholin-4-yl-pyrimidin-4-yl]-hydrazine,

3-{4-[N'-(1H-indol-3-ylmethylene)-hydrazino]-6-morpholin-4-yl-pyrimidin-2-ylsulfanyl}-propan-1-ol,

3-{2-[N'-(1H-indol-3-ylmethylene)-hydrazino]-6-morpholin-4-yl-pyrimidin-4-ylsulfanyl}-propan-1-ol,

N-[2-(2,2-dimethyl-[1,3]dioxolan-4-ylmethoxy)-6-morpholin-4-yl-pyrimidin-4-yl]-N'-(1H-indol-3-ylmethylene)-hydrazine,

N-{2-[2-(3,4-dimethoxy-phenyl)-ethoxy]-6-morpholin-4-yl-pyrimidin-4-yl}-N'-(1H-indol-3-ylmethylene)-hydrazine,

N-(1H-indol-3-ylmethylene)-N'-[6-morpholin-4-yl-2-(2-pyridin-2-yl-ethoxy)-pyrimidin-4-yl]-hydrazine,

N-(1H-indol-3-ylmethylene)-N'-[6-morpholin-4-yl-2-(3-pyridin-2-yl-propyl)-pyrimidin-4-yl]-hydrazine,

N-(3-methyl-benzylidene)-N'-[6-morpholin-4-yl-2-(2-pyridin-2-yl-ethoxy)-pyrimidin-4-yl]-hydrazine,

N-(3-ethyl-benzylidene)-N'-[6-morpholin-4-yl-2-(2-pyridin-2-yl-ethoxy)-pyrimidin-4-yl]-hydrazine,

N-(3-methyl-benzylidene)-N'-[6-morpholin-4-yl-2-(3-pyridin-2-yl-propyl)-pyrimidin-4-yl]-hydrazine,

N-[6-morpholin-4-yl-2-(2-pyridin-2-yl-ethoxy)-pyrimidin-4-yl]-N'-(1-*m*-tolyl-ethylidene)-hydrazine,

N-[1-(1H-indol-3-yl)-ethylidene]-N'-[6-morpholin-4-yl-2-(2-pyridin-2-yl-ethoxy)-pyrimidin-4-yl]-hydrazine,

3-methyl-benzaldehyde O-[6-morpholin-4-yl-2-(2-pyridin-2-yl-ethoxy)-pyrimidin-4-yl]-oxime,

1H-indole-3-carbaldehyde O-[6-morpholin-4-yl-2-(2-pyridin-2-yl-ethoxy)-pyrimidin-4-yl]-oxime,

N-(1H-indol-3-ylmethylene)-N'-{6-morpholin-4-yl-2-[2-(pyridin-3-yloxy)-ethoxy]-pyrimidin-4-yl}-hydrazine,

N-(3-methyl-benzylidene)-N'-{6-morpholin-4-yl-2-[2-(pyridin-3-yloxy)-ethoxy]-pyrimidin-4-yl}-hydrazine,

butyl-{4-[N'-(1H-indol-3-ylmethylene)-hydrazino]-6-morpholin-4-yl-pyrimidin-2-yl}-amine,

N-(3-methyl-benzylidene)-N'-[6-morpholin-4-yl-2-(pyridin-3-yloxy)-pyrimidin-4-yl]-hydrazine,

N-(3-methylbenzlidene)-N'-(5-methyl-6-morpholin-4-yl-2-phenylpyrimidin-4-yl)hydrazine,

N-(3-methyl-benzylidene)-N'-(2-phenyl-6-thiomorpholin-4-yl-pyrimidin-4-yl)-hydrazine,

(2,3-dimethyl-1H-indole-5-yl)-{6-morpholin-4-yl-2-[2-(pyridin-3-yloxy)-ethoxy]-pyrimidin-4-yl}-amine,

(2,3-dimethyl-1H-indole-5-yl)-{4-morpholin-4-yl-6-[2-(pyridin-3-yloxy)-ethoxy]-pyrimidin-2-yl}-amine,

3-{4-[N'-(3-methyl-benzylidene)-hydrazino]-6-morpholin-4-yl-pyrimidin-2-yl}-propionic acid ethyl ester,

N-(3-methyl-benzylidene)-N'-{6-morpholin-4-yl-2-[2-(1-oxy-pyridin-2-yl)-ethoxy]-pyrimidin-4-yl}-hydrazine,

1-(2-{4-[N'-(3-methyl-benzylidene)-hydrazino]-6-morpholin-4-yl-pyrimidin-2-yloxy}-ethyl)-*1H*-pyridin-2-one,

N-(3-iodo-benzylidene)-N'-[6-morpholin-4-yl-2-(2-pyridin-2-yl-ethoxy)-pyrimidin-4-yl]-hydrazine,

N-(3-fluoro-benzylidene)-N'-[6-morpholin-4-yl-2-(2-pyridin-2-yl-ethoxy)-pyrimidin-4-yl]-hydrazine,

N-(3-chloro-benzylidene)-N'-[6-morpholin-4-yl-2-(2-pyridin-2-yl-ethoxy)-pyrimidin-4-yl]-hydrazine,

N-(3-bromo-benzylidene)-N'-[6-morpholin-4-yl-2-(2-pyridin-2-yl-ethoxy)-pyrimidin-4-yl]-hydrazine,

3-{[6-morpholin-4-yl-2-(2-pyridin-2-yl-ethoxy)-pyrimidin-4-yl]-hydrazonomethyl}-benzoic acid methyl ester,

1-(2-{4-[N'-(3-iodo-benzylidene)-hydrazino]-6-morpholin-4-yl-pyrimidin-2-yloxy}-ethyl)-1H-pyridin-2-one,

3-{[6-morpholin-4-yl-2-(2-pyridin-2-yl-ethoxy)-pyrimidin-4-yl]-hydrazonomethyl}-benzoic acid N-methyl amide, or

(3-{[6-morpholin-4-yl-2-(2-pyridin-2-yl-ethoxy)-pyrimidin-4-yl]-hydrazonomethyl}-phenyl)-methanol,

N,N-Diethyl-4-{4-[N''-(3-methyl-benzylidene)-hydrazino]-6-morpholin-4-yl-pyrimidin-2-yl}-butyramide,

4-{4-[N'-(3-Methyl-benzylidene)-hydrazino]-6-morpholin-4-yl-pyrimidin-2-yl}-1-(4-methyl-piperazin-1-yl)-butan-1-one,

4-{4-[*N'*-(3-Methyl-benzylidene)-hydrazino]-6-morpholin-4-yl-pyrimidin-2-yl}-*N*-pyridin-4-ylmethyl-butyramide,

4-{4-[*N'*-(3-Methyl-benzylidene)-hydrazino]-6-morpholin-4-yl-pyrimidin-2-yl}-*N*-pyridin-4-yl-butyramide.

2-{4-[N'-(3-Methyl-benzylidene)-hydrazino]-6-morpholin-4-yl-pyrimidin-2-yloxy}-1-pyridin-2-yl-ethanol

6-(2-{4-[N'-(3-Methyl-benzylidene)-hydrazino]-6-morpholin-4-yl-pyrimidin-2-yloxy}-ethyl)-pyridin-3-ol

6-(2-{4-[N'-(3-Hydroxymethyl-benzylidene)-hydrazino]-6-morpholin-4-yl-pyrimidin-2-yloxy}-ethyl)-pyridin-3-ol

42. A method for treating or preventing a disorder associated with excessive bone loss, the method comprising administering to a patient in need thereof

a compound according to claim 1, a composition comprising an effective amount of a compound according to claim 1, a compound according to formula (I) as described in any one of claims 2-41, or a composition according to any one of claims 2-41.

43. The method according to claim 42, wherein the disorder is selected from the group consisting of periodontal disease, non-malignant bone disorders (such as osteoporosis, Paget's disease of bone, osteogenesis imperfecta, fibrous dysplasia, and primary hyperparathyroidism) estrogen deficiency, inflammatory bone loss, bone malignancy, arthritis, osteopetrosis, and certain cancer-related disorders (such as hypercalcemia of malignancy (HCM), osteolytic bone lesions of multiple myeloma and osteolytic bone metastases of breast cancer and other metastatic cancers)

44. The method according to claim 42 or 43, the method further comprising administering another therapeutic agent.

45. The method according to claim 44, wherein the other therapeutic agent is selected from the group consisting of: anti-resorptive agents, non-steroidal anti-inflammatory agents, steroids, and analgesics.

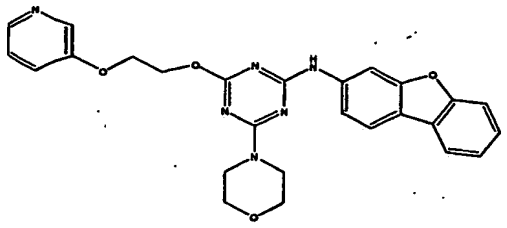
46. The method according to claim 45, wherein the anti-resporptive agent is selected from the group consisting of progestins, polyphosphonates, bisphosphonate(s), estrogen agonists/antagonists, estrogen,estrogen/progestin combinations, and estrogen derivatives.

47. The method according to claim 46, wherein the estrogen derivative is estrone, estriol or 17α, 17β-ethynyl estradiol.

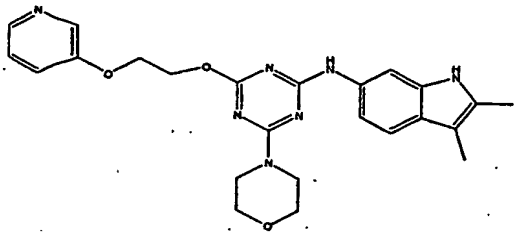
48. A method for inhibiting osteoclast formation in a pre-osteoclast cell the method comprising contacting the cell with a compound according to claim 1, a composition comprising an effective amount of a compound according to

claim 1, a compound according to formula (I) as described in any one of claims 2-41, or a composition according to any one of claims 2-41.

49. A compound selected from the group consisting of:

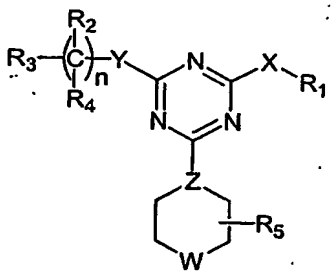


and



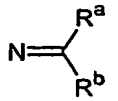
or a pharmaceutically acceptable salt, solvate, clathrate, or prodrug thereof.

50. A compound of formula (I'):



(I')

wherein

R_1 is  , aryl, or heteroaryl;

each of R_2, R_4, and R_5, independently, is R^c, halogen, nitro, nitroso, cyano, azide, isothionitro, SR^c, or OR^c;

R_3 is R^c, alkenyl, alkynyl, aryl, heteroaryl, cyclyl, heterocyclyl, OR^c, $OC(O)R^c$, SO_2R^c, $S(O)R^c$, $S(O_2)NR^cR^d$, SR^c, NR^cR^d, NR^cCOR^d, $NR^cC(O)OR^d$, $NR^cC(O)NR^cR^d$, $NR^cSO_2R^d$, COR^c, $C(O)OR^c$, or $C(O)NR^cR^d$;

n is 0, 1, 2, 3, 4, 5, 6, or 7;

X is O, S, S(O), $S(O_2)$, or NR^c;

Y is a covalent bond, CH_2, C(O), $C=N-R^c$, $C=N-OR^c$, $C=N-SR^c$, O, S, S(O), or $S(O_2)$;

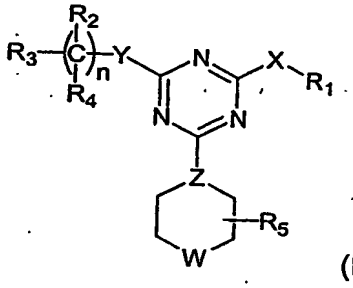
Z is N; and

W is O, S, S(O), $S(O_2)$, NR^c, or $NC(O)R^c$;

in which each of R^a and R^b, independently, is H, alkyl, aryl, heteroaryl; and each of R^c and R^d, independently, is H, alkyl, or alkylcarbonyl

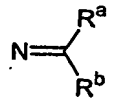
or a pharmaceutically acceptable salt, solvate, clathrate, or prodrug thereof.

51. A composition comprising an effective amount of a compound of formula (I'):



(I'),

wherein

R_1 is  , aryl, or heteroaryl;

each of R_2, R_4, and R_5, independently, is R^c, halogen, nitro, nitroso, cyano, azide, isothionitro, SR^c, or OR^c;

R_3 is R^c, alkenyl, alkynyl, aryl, heteroaryl, cyclyl, heterocyclyl, OR^c, $OC(O)R^c$, SO_2R^c, $S(O)R^c$, $S(O_2)NR^cR^d$, SR^c, NR^cR^d, NR^cCOR^d, $NR^cC(O)OR^d$, $NR^cC(O)NR^cR^d$, $NR^cSO_2R^d$, COR^c, $C(O)OR^c$, or $C(O)NR^cR^d$;

n is 0, 1, 2, 3, 4, 5, 6, or 7;

X is O, S, S(O), $S(O_2)$, or NR^c;

Y is a covalent bond, CH_2, C(O), $C=N-R^c$, $C=N-OR^c$, $C=N-SR^c$, O, S, S(O), $S(O_2)$, or NR^c;

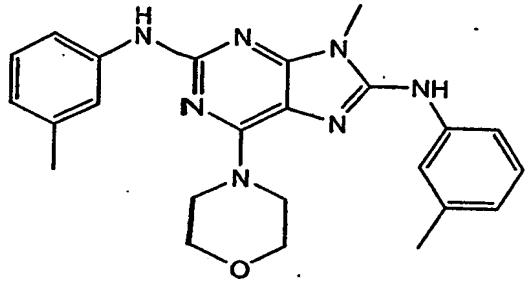
Z is CH; and

W is O, S, S(O), $S(O_2)$, NR^c, or $NC(O)R^c$;

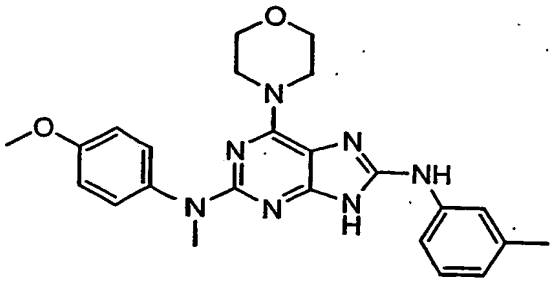
in which each of R^a and R^b, independently, is H, alkyl, aryl, heteroaryl; and each of R^c and R^d, independently, is H, alkyl, or alkylcarbonyl

or a pharmaceutically acceptable salt, solvate, clathrate, or prodrug thereof.

52. A compound selected from the group consisting of:

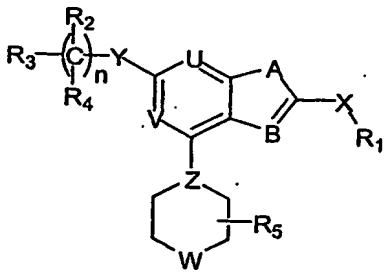


and



or a pharmaceutically acceptable salt, solvate, clathrate, or prodrug thereof.

53. A compound of formula (I"):



(I")

wherein

R_1 is aryl or heteroaryl;

each of R_2 and R_4, independently, is H, halogen, CN, alkyl, OR^a, or NR^aR^b;

R_3 is H, halogen, CN, alkyl, alkenyl, alkynyl, aryl, heteroaryl, cyclyl, heterocyclyl, OR^a, $OC(O)R^a$, $OC(O)NR^aR^b$, NR^aR^b, $NR^aC(O)R^b$, $NR^aS(O)R^b$, $NR^aS(O)_2R^b$, $NR^aC(O)NR^bR^c$, $NR^aC(S)NR^bR^c$, $NR^aC(NR^b)NR^cR^d$, $NR^aC(O)OR^b$, $S(O)NR^aR^b$, $S(O)_2NR^aR^b$, $S(O)R^a$, $S(O)_2R^a$, $C(O)R^a$, $C(O)OR^a$, or $C(O)NR^aR^b$;

R_5 is H or alkyl;

n is 0, 1, 2, 3, 4, 5, or 6;

A is O, S, S(O), $S(O)_2$, or NR^e;

B is N or CR^f;

X is O, S, S(O), $S(O)_2$, NR^e, or C(O);

Y is a covalent bond, C(O), $C=NR^a$, O, S, S(O), $S(O)_2$, or NR^e;

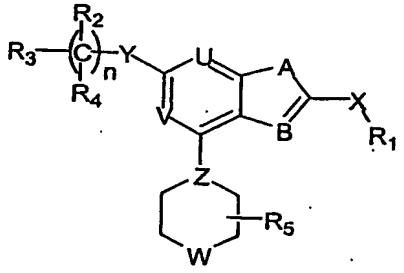
Z is N or CH;

each of U and V, independently, is N or CR; and

W is O, S, or NR^e;

in which each of R^a, R^b, R^c, and R^d, independently, is H, alkyl, aryl, heteroaryl, cyclyl, or heterocyclyl; R^e is H, alkyl, aryl, acyl, or sufonyl; and R^f is H, alkyl, aryl, acyl, sulfonyl, alkoxyl, amino, ester, amide, CN, or halogen.

54. A composition comprising an effective amount of a compound of formula (I"):



(I")

wherein

R_1 is aryl or heteroaryl;

each of R_2 and R_4, independently, is H, halogen, CN, alkyl, OR^a, or NR^aR^b;

R_3 is H, halogen, CN, alkyl, alkenyl, alkynyl, aryl, heteroaryl, cyclyl, heterocyclyl, OR^a, $OC(O)R^a$, $OC(O)NR^aR^b$, NR^aR^b, $NR^aC(O)R^b$, $NR^aS(O)R^b$, $NR^aS(O)_2R^b$, $NR^aC(O)NR^bR^c$, $NR^aC(S)NR^bR^c$, $NR^aC(NR^b)NR^cR^d$, $NR^aC(O)OR^b$, $S(O)NR^aR^b$, $S(O)_2NR^aR^b$, $S(O)R^a$, $S(O)_2R^a$, $C(O)R^a$, $C(O)OR^a$, or $C(O)NR^aR^b$;

R_5 is H or alkyl;

n is 0, 1, 2, 3, 4, 5, or 6;

A is O, S, S(O), $S(O)_2$, or NR^e;

B is N or CR^f;

X is O, S, S(O), $S(O)_2$, NR^e, or C(O);

Y is a covalent bond, C(O), $C=NR^a$, O, S, S(O), $S(O)_2$, or NR^e;

Z is N or CH;

each of U and V, independently, is N or CR; and

W is O, S, or NR^e;

in which each of R^a, R^b, R^c, and R^d, independently, is H, alkyl, aryl, heteroaryl, cyclyl, or heterocyclyl; R^e is H, alkyl, aryl, acyl, or sufonyl; and R^f is H, alkyl, aryl, acyl, sulfonyl, alkoxyl, amino, ester, amide, CN, or halogen

or a pharmaceutically acceptable salt, solvate, clathrate, or prodrug thereof.

55. A method for treating or preventing a disorder associated with excessive bone loss, the method comprising administering to a patient in need thereof a compound according to claim 49 or 52, a composition comprising an effective amount of a compound according to claim 49 or 52, a compound according to formula (I') or (I") as described in any one of claims 50 or 53, or a composition according to any one of claims 51 or 54.

56. The method according to claim 55, wherein the disorder is selected from the group consisting of periodontal disease, non-malignant bone disorders (such as osteoporosis, Paget's disease of bone, osteogenesis imperfecta, fibrous dysplasia, and primary hyperparathyroidism) estrogen deficiency, inflammatory bone loss, bone malignancy, arthritis, osteopetrosis, and certain cancer-related disorders (such as hypercalcemia of malignancy (HCM), osteolytic bone lesions of multiple myeloma and osteolytic bone metastases of breast cancer and other metastatic cancers).

57. A method for inhibiting osteoclast formation in a pre-osteoclast cell the method comprising contacting the cell with a compound according to claim 49 or 52, a composition comprising an effective amount of a compound according to

claim 49 or 52, a compound according to formula (I') or (I'') as described in any one of claims 50 or 53, or a composition according to any one of claims 51 or 54.